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SUBSTITUTE SPECIFICATION

GATED CLOCK RECOVERY CIRCUIT

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Field of the Invention

The present invention relates to clock recovery circuits, and more particularly, to circuits that operate in a burst mode to recover the clock signal from an early bit in the incoming data.

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Background of the Invention

In a communication system, the transmitter has clock circuitry that controls the speed at which data is transferred via a communications medium. The receiver also has clock circuitry that controls the speed at which the data that is received from the communications 15 medium is processed. Ideally, the receiver's clock and the transmitter's clock will operate at exactly the same frequency and will be appropriately aligned in phase. The transmitter's clock and the receiver's clock, however, are typically close but not identical in frequency, resulting in frequency mismatch.

Receivers in many digital communication systems recover the clock signal 20 directly from the incoming data sequence, typically using a phase-locked loop (PLL) circuit. In such an implementation, the PLL circuits generate a local clock signal that is phase aligned with the incoming reference signal. The phase aligned local clock signal facilitates the receipt and processing of synchronous data sent by a transmitter in the communication system.

Typically, conventional PLL circuits include a phase detector, a filter and a 25 voltage-controlled oscillator (VCO). In the conventional PLL circuit, the phase detector compares the incoming reference signal (DATA) and the output of the VCO. The phase detector generates an error signal that is representative of the phase difference of the reference signal and the VCO output. The error signal is filtered and applied to the control input of the VCO to produce an output signal that tracks the phase of the reference signal.

30   Many clock recovery circuits operate in a continuous mode, where the transmitter and receiver continuously operate and monitor communication ports for arriving data. Such continuous operation, however, requires a significant amount of power, which is particularly

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